

Electronic supplementary information (ESI)

One-Dimensional Hierarchical MoO₂-MoS_x Hybrids as High Active
and Durable Catalyst in Hydrogen Evolution Reaction

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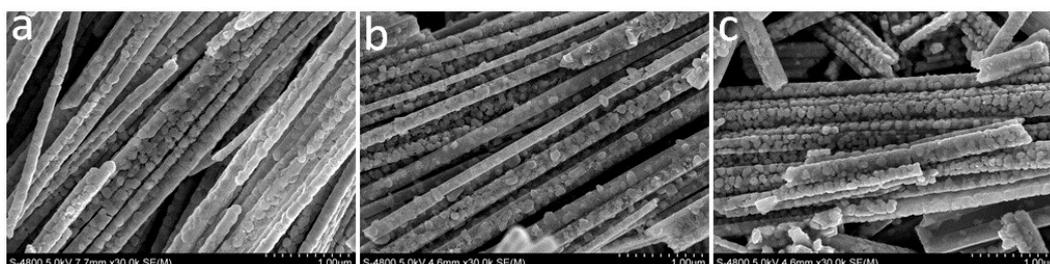


Figure S1: SEM images of the prepared MoO₂ based samples at different reaction intervals, (a) pure MoO₂; (b) MoO₂-MoS_x-3; (c) MoO₂-MoS_x-6.

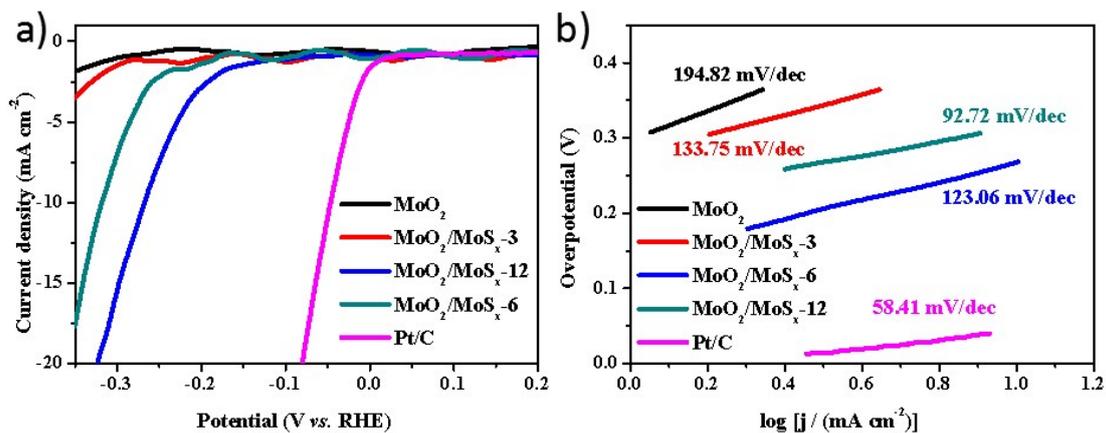


Figure S2: electrocatalytic performances evaluation of the prepared MoO₂-based electrodes at alkaline media (1 M KOH), (a) polarization curves; (b) the corresponding Tafel slope plots.

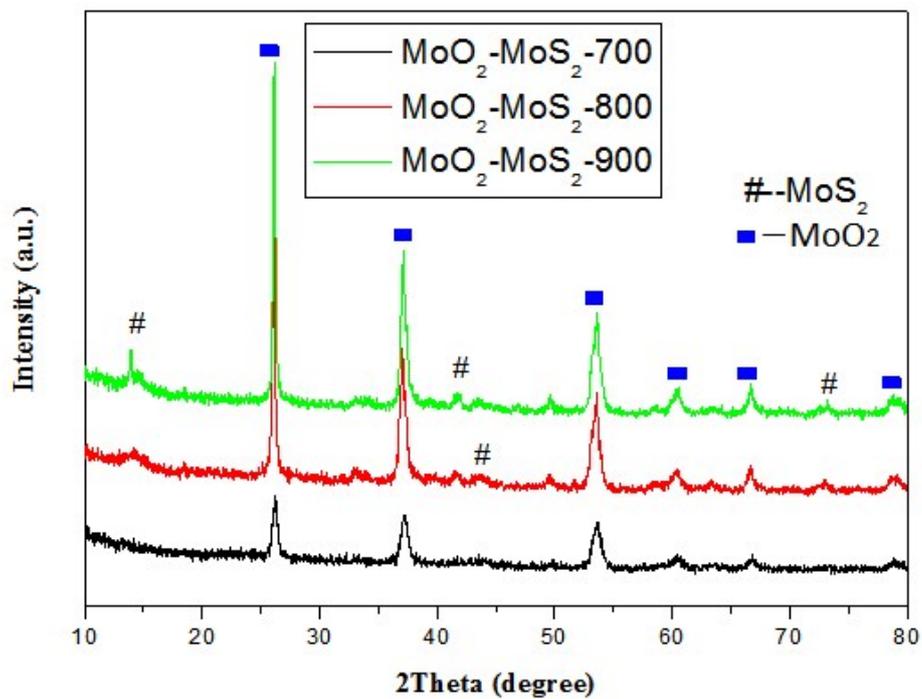


Figure S3: XRD patterns of the prepared MoO₂-MoS₂ samples at different calcination temperatures.

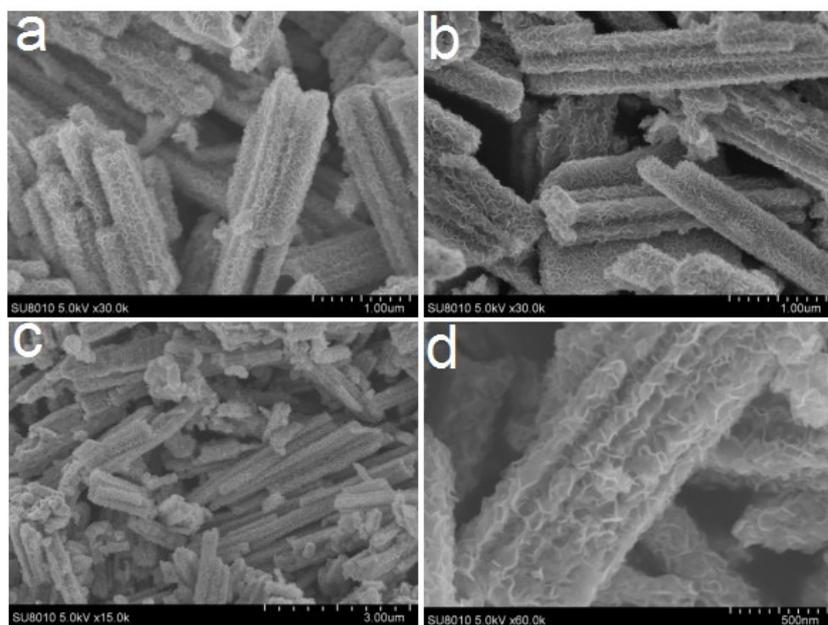


Figure S4: SEM images of the prepared MoO₂-MoS₂ samples at different calcination temperatures, (a) 700; (b) 800; (c-d) 900 °C.

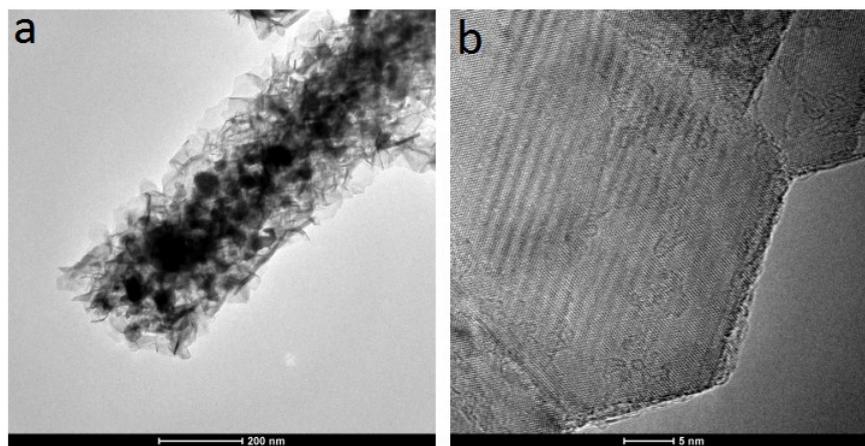


Figure S5: Morphology and structure analysis of the MoO₂-MoS₂ sample formed via calcination treatment at 800°C furnace for 2h, a) TEM image; b) HRTEM image.

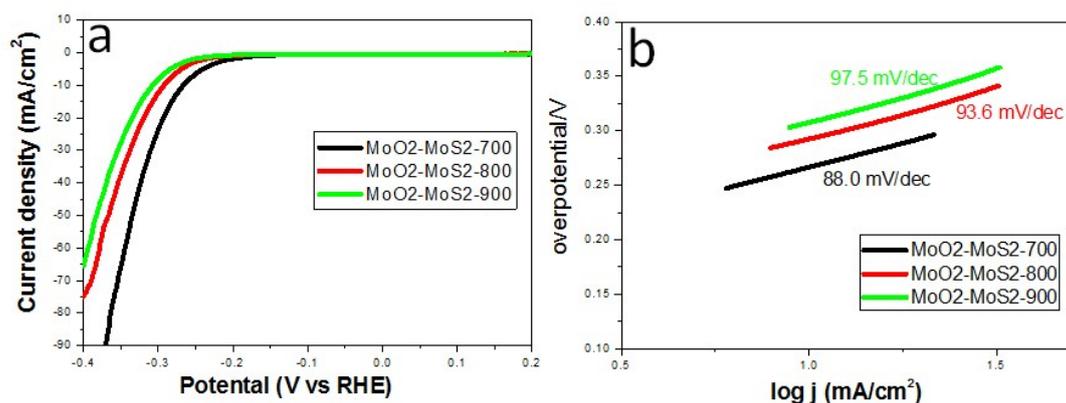


Figure S6: electrocatalytic performances evaluation of the prepared $\text{MoO}_2\text{-MoS}_2$ samples at different calcination temperatures, (a) polarization curves; (b) Tafel slope plots.

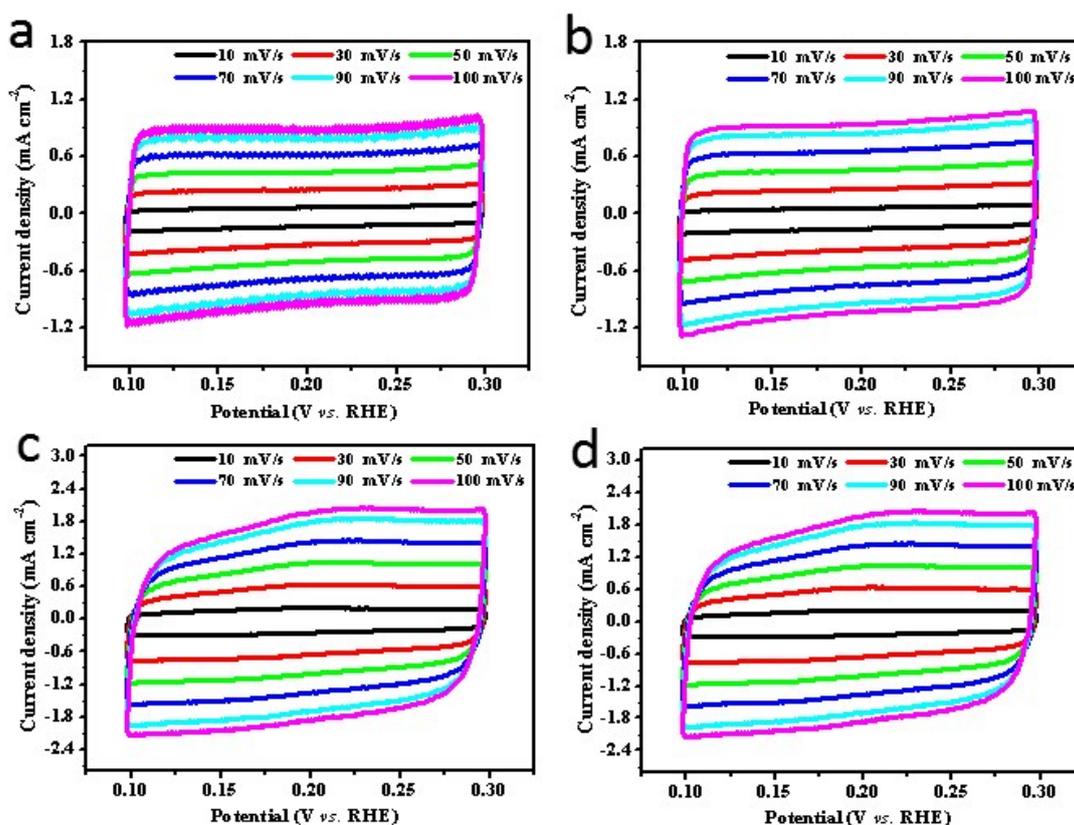


Figure S7: LSV curves of the prepared samples at different scan rates, (a) pure MoO_2 ; (b) $\text{MoO}_2\text{-MoS}_3$; (c) $\text{MoO}_2\text{-MoS}_6$; (d) $\text{MoO}_2\text{-MoS}_{12}$.

Figure S8: Structural and morphology analysis for the MoO₂-MoS_x-12 electrode after long-time cycles, (a) Raman spectra; (b) SEM image.